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EXAMINER

TUNG, TA HSUNG

ART UNIT PAPER NUMBER

1753

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,036

Applicant(s)

DUTTA BEAL

Examiner

L. TUNG

Group Art Unit

1753

Paper No. 6

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-17 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-17 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit: 1102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Szabo et al.

The Szabo article clearly anticipates the instant claims. See pages 1-6. This article is a proper reference because its authorship is not identical with the application's inventive entity. See MPEP 715.01(c).

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 12, 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Clyde et al 6,468,407.

Clyde discloses a sensor element having a yttria stabilized zirconia solid electrolyte 42 with electrodes 20 and 22 made of Pt, Au. Electrode 20 is covered by a layer comprising Y-zeolite. See col. 3, line 46 to col. 5, line 56.

As for claim 17, note that porous layer 40/32 serves to protect the electrodes and the electrolyte.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clyde et al in view of Gao et al 6,551,497.

This claim differs by calling for a potentiometer in an electrical circuit for the sensor element that includes a source of electrical potential to be supplied between the electrodes.

Clyde at col. 3, last two lines, suggests that the electrodes are provided with a potential source. Gao discloses a solid electrolyte sensor with an electrical circuit that includes both a potential source 35 and a potential measuring means 36. See figures 3(A) and (B); col. 4, lines 52-56 and col. 5, lines 49-67.

It would have been obvious for Clyde to adopt a potentiometer, which is a conventional potential measuring means, in its measuring circuit in view of Gao, since it is clearly desirable to know and control at all times the potential between the electrodes.

Claims 7, 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clyde in view of Kurosawa et al 5,897,759.

These claims differ from Clyde by calling for the solid electrolyte to be in the form of a tube.

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Kurosawa discloses a sensor whose solid electrolyte can be in the form of a tube (figure 1) or a planar substrate (figure 3). See col. 4, line 50 to col. 5, line 37. Note particularly col. 5, lines 34-35, where the patent teaches both forms to be conventional.

It would have been obvious for Clyde to adopt the tubular form for its electrolyte in view of Kurosawa. One advantage of the tubular configuration is the inherent provision of an inside and an outside for the sensor element without further structure, whereby a sample gas can be isolated from a reference gas. An advantage of the planar configuration is the ease of manufacturing and miniaturization. The two electrolyte forms are art-recognized equivalents. Selecting one over the other is a matter of design choice to suit the particular requirements of the sensor.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clyde et al in view of Kurosawa et al and Gao et al.

This claim further differs by calling for a potentiometer. As discussed before, that feature is rendered obvious by Gao.

Claims 1, 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clyde et al in view of Bannister et al 4,193,857 or Fitterer 3,752,753 and Ross 4,663,017.

These claims differ from Clyde by calling for the sensor to have a configuration comprising a tube capped by a solid electrolyte at one end, one electrode on the inner surface of the electrolyte and the other electrode on the outer surface of the electrolyte, and the zeolite cover over the inner surface electrode.

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Bannister discloses a solid electrolyte cap 11 closing one end of an alumina tube 10. See figure 1; col. 6, line 52 to col. 7, line 29 and col. 9, lines 48-52.

Fitterer discloses a solid electrolyte cap 52 closing one end of an alumina tube 46. See figure 1; col. 5, lines 1-3 and col. 6, line 75.

Ross discloses a sensor wherein a sample gas flows past the inside of a solid electrolyte tube 14. See figure 1; col. 2, lines 30-59.

It would have been obvious for Clyde to adopt the sensor configuration of Bannister or Fitterer. As discussed before, a tubular form is a well-known alternative to a planar substrate form. The configuration of Bannister or Fitterer has the added advantage that the electrolyte itself constitutes only a portion of the tube. This would result in a saving in material cost, since zirconia (the electrolyte) is a more expensive material than alumina. Also, an entire tube made of zirconia would be much more susceptible to thermal shock than a zirconia cap in the shape of a pellet, as discussed in Fitterer (see the abstract and col. 6, line 43).

Applicant's claims call for the zeolite layer to cover the inner electrode. Even though the Bannister or Fitterer sensor intends the sample to contact the outer electrode and Clyde's zeolite layer covers the electrode 20 exposed to a sample gas, it is evident from Ross that the sample gas can be made to contact an inner electrode. Having a sample gas contact an outer electrode and a reference medium contact an inner electrode, or vice versa, is a simple matter of design choice in the absence of unexpected result.

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Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clyde et al in view of Bannister et al or Fitterer and Ross and Gao et al.

This claim further differs by calling for a potentiometer. As discussed before, that feature is rendered obvious by Gao.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of copending Application No. 10/061,116 in view of Takahashi et al 5,705,129.

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This is a provisional obviousness-type double patenting rejection.

The two sets of claims differ basically by the location of the zeolite-containing material. In the instant case, the material covers an electrode of a sensor, while in SN '116, the material is located in a catalytic filter upstream of the sensor.

Takahashi discloses locating a catalytic filter 6 upstream of a sensor 8. See figure 1; col. 2, lines 36-64. In view of Takahashi, it would have been obvious to locate the zeolite material either as a cover layer for an electrode of the sensor or upstream of the sensor, so long as a sample reaches the zeolite material before the electrode of the sensor. The first arrangement provides a more streamlined design wherein all components are compacted together, while the second arrangement allows the sample gas more space to come to equilibrium before contacting the electrode of the sensor. One of ordinary skill in the art would readily recognize the advantages of each location and design a sensor pursuant to the particular requirements of that sensor.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 7, --first-- should be added after "said" at the end of the line to eliminate any doubt which electrode is being covered by the zeolite layer.

Kaneyasu et al 5,413,691 discloses a zeolite filter for a solid electrolyte sensor. See col. 7, lines 30-54.

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The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-872-9310.



Ta Tung

Primary Examiner

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